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23. *POLYPORUS ALABAMÆ*, B. & C.—A rare and beautiful species; white. On a dead hickory limb.
24. *POLYPORUS CINNABARINUS*, Fr.—Only a few specimens found on a dead *Magnolia* log.
25. *POLYPORUS HEMILEUCUS*, B. & C.—Abundant on dead *Carya* and *Magnolia*. Very fine.
26. *POLYPORUS AMOEMUS*, B. & C.—Rather common on old logs.
27. *POLYPORUS SALMONICOLOR*, B. & C.—Not abundant. On fallen trees.
28. *POLYPORUS PURPUREUS*, Fr.—Very beautiful and very rare. Margins lilac color.
29. *POLYPORUS MOLLUSCUS*, Fr.—Pure white, with soft, velvety texture. Rare. On fallen limbs.
30. *POLYPORUS NITIDUS*, Fr.—Common on under side of fallen trees. Has been called *P. vulgaris*.
31. *POLYPORUS VAPORARIUS*, Fr.—Common. Name very appropriate, as the beautiful glistening color soon disappears.
32. *POLYPORUS IGNIARIUS*, Fr.—Occasional in decayed places on living *Quercus*.
33. *POLYPORUS TABACINUS*, Mont.—Abundant on old oak stump.
34. *POLYPORUS LACTEUS*, Fr.—On dead fallen limbs. Not common.
35. *POLYPORUS ECTYPUS*, B. & Rav.—Rare. Found on a small oak stump in a swamp. Very fine.

ELIAS MAGNUS FRIES.

BY WM. R. DUDLEY, CORNELL UNIVERSITY.

ELIAS MAGNUS FRIES was born at Femsjö, Sweden, Aug. 15th, 1794, and died at Upsala, Sweden, Feb. 8th, 1878. Although he had but comparatively little to do directly, with the fungi of America, no catalogue of our higher fungi can be published but does not show his name as author of a very large number of species which are found here as well as in Europe. He is regarded as the founder of the systematic literature, in a true sense, in that branch of botany. Therefore, as Linnæus and his writings must form a part of every nation's history of its botany, so Elias Fries, another great Swedish botanist,—and next to Linnæus the greatest,—must enter into the history of cryptogamic botany, especially of fungi, wherever and whenever that subject is historically considered.

Fries' career may be said to have been a century later than that of the great baron's; for, although he was born about thirteen years less than a century after the birth of Linnæus, his life was prolonged till Feb. 8th, 1878, or one month after the centenary of the death of his great prototype. There is a curious parallelism extending throughout the whole career of these two men. Both were sons of country clergy-

men, and born in Smaland, in the southern part of Sweden. Both, as lads, attended the school at Wexio, and both entered the University of Lund, although Linnæus remained there only one year, finally taking his degree at Upsala, while Fries graduated at Lund. Both held for many years, as the crowning position of long and distinguished university careers, the professorship of Botany at Upsala, the most famous of the Swedish universities, where each died greatly beloved and honored. They were both voluminous in their authorship,—indeed, they have few parallels, in this respect, in botany,—and the period covered by the work of each also fairly represents the comparative difference in time in development of phænogamic and cryptogamic botany. It has been said, furthermore, that Fries was almost the last of that generation whose knowledge extended over all branches of the science as it was then understood and whose names were considered as authorities in all.

Apparently the life of Fries was marked by no great privations or hardships. The way to his career opened most alluringly even from his boyhood. His father was a zealous and even accomplished botanist, and, as the boy had no brothers or sisters, or even young playmates, his father early led him into a very close acquaintanceship with nature, and made for him friends of the little wild flowers which grew among the wooded hills of Smaland,—“Friends who did not afterwards desert him, but were always true,” as he says many years after. He also says that his interest in fungi began when he was twelve years old by the discovery of the beautiful *Hydnum coralloides* one day, when out in the woods and fields with his mother. Few fungi had been described at that time, and the next day, in attempting to determine his *Hydnum*, he learned in a short time the characters of all the genera described in his “Flora.” When he was fourteen, during the turmoil of the Napoleonic wars, his school at Wexio was closed and he renewed his observations on fungi with the greatest ardor, describing and giving temporary names to those he found. He continued this till 1811, when he left his gymnasium to enter the University of Lund, at which time he had learned to distinguish between three and four hundred species of these plants. At the university he found eminent men of science, among whom was the elder Agardh, then a young man of twenty-six, and who was yet to make his fame as an algologist. Every one showed great kindness to the bright and enthusiastic boy, but he found his greatest delight in the library and its treasures of botanical works. Here he poured over the volumes of Persoon and Albertini, probably also over the *CONSPICUUS FUNGORUM* of Albertini and our own Schweinitz. Here, also, were the earlier volumes of the classic *FLORA DANICA*, begun thirty years before the birth of Fries, and whose completion he did not live to see. Beside the illustrations of the latter work, there were those of Buxbaum and Persoon, and we can imagine how his imagination kindled toward future work as he here recognized many of his old friends of the Smaland woods, such as he had previously described. The three years of his university life passed quickly away, but he maintained an excellent standing, although

he was industriously collecting and working on his fungi. In 1814, he took his degree at Lund, and was immediately nominated "Docens" of botany in that university. His first publication, begun during that year, seems to have been in phænogamic botany, and was entitled, *NOVITIÆ FLORÆ SUECIÆ*. But in 1815 he published the first part of *OBSERVATIONES MYCOLOGICÆ*, based chiefly on collections made during his university course, the second volume appearing in 1818. He was preparing other papers at the same time on both phænogamic and cryptogamic plants. His keenly-discriminating mind soon saw that the classification previously established for the lower plants was exceedingly defective. He therefore began, when he was not yet twenty-two, a systematic review of all the fungi known to him. The result was more extended and accurate descriptions of species, based on the morphology of the parts, taking into account, also, the life and development of the fungus, wherever that was possible. In theory, his new system of classification also was thoroughly scientific and in line with the most advanced views of the day in regard to systematic botany. It was hailed by all lovers of the subject as the true basis for the scientific study of the lower plants. The publication of this work was begun, it must be remembered, twelve years before the compound microscope was brought into use. Notwithstanding the cordial reception of his new system and his recent work, the indomitable spirit of Fries did not rest satisfied; in 1829, therefore, having completed his first great work on fungi, *SYSTEMA MYCOLOGICUM*, in three volumes, he again revised all his species and descriptions with great care, to test the value of his theoretic conclusions. As he had now begun to pay more especial attention to the *Hymenomycetes*, a third careful survey of this group resulted in his *EPICRISIS SYSTEMATIS MYCOLOGICI, SEU SYNOPSIS HYMENOMYCETUM*, published in 1836-38. In 1844, the Royal Academy of Science, at Stockholm, proposed to bear the expense of a series of colored engravings of all the higher fungi, to be made by or under the supervision of Professor Fries. For this work he again went over all the material obtainable, and the first series of these elaborate figures was published between 1867 and 1875, consisting of 100 folio plates, and entitled, *ICONES SELECTÆ HYMENOMYCETUM NONDUM DELINEATORUM*. At the time of his death, a large number of additional plates had accumulated, and a second similar series, under the same title and of the same number of plates, was issued between 1878 and 1884, edited by his sons. These are estimated to contain nearly 1,700 figures. A second edition of his *HYMENOMYCETES* was issued in 1874, the preface written on his eighty-first birthday. Two other works on fungi might be mentioned as important among his larger publications, viz.: *MONOGRAPHIA HYMENOMYCETUM SUECIÆ*, 1851-63, in two volumes 8vo. and *FUNGI ESCULENTI ET VENENATI SCANDINAVIÆ*, 1862-69, with ninety-three folio plates.

In other fields of botanical science, he has been indefatigable. After holding the adjunct professorship of Botany at Lund for many years, he was called to the chair of Practical Economy at Upsala in 1834.

This, together with the many papers on economic botany and agriculture bearing his name, testify to the esteem with which he was held in practical affairs. It was not many years, however, before he was promoted to the professorship of Botany at Upsala, the chair once held by Linnæus.

In the botany of higher plants, he was a recognized authority till the last, and is the author, in this branch, of ten or twelve works of considerable extent, bearing a variety of titles. These include "Floras" of the whole or parts of Sweden. His papers and schemes embodying his theories of the principles of classification in phænogamic botany deserve a passing notice, as they contain suggestions original with him, and not only attracted attention when they were put forth, but have been utilized, to a considerable extent, by several modern systematists.

In lichenology, also, he was a very active worker during his younger days, but his writing in that field might be said to have culminated as long ago as 1831, when he published his *LICHENOGRAPHIA EUROPÆA REFORMATA*, regarded for many years as a standard authority on the subject. He also issued fascicles of herbarium specimens of lichens, which are of the highest value.

Finally, beside the larger works, some of which have been mentioned, the Royal Society catalogue, Vol. III and Vol. VII, enumerate the titles of eighty-five lesser papers published by him down to 1873, covering the widest variety of topics in botanical science, and scattered through various periodical publications. This almost unparalleled activity continued to the last. Dr. Lundstrom, of Upsala, says of him that, a week before his death, he completed an essay for a foreign periodical; and, even as his latest hours approached, he reviewed with unclouded mind and critical interest an English publication which had just come to hand, saying that "England has more numerous and more remarkable *Discomycetes* than Sweden, but as regards *Hymenomycetes*, we take by far the lead." Endowed with a vigorous constitution, fortunate in the mental atmosphere in which he was born and reared, fortunate in experiencing no painful delays in beginning his favorite study and no lack of appreciation in their continuance, he was happily free, in his latest hours, from the clouds which settled over the mind of his great predecessor at Upsala. The most interesting portrait of him extant is the last one taken, showing long, white locks escaping from beneath the scholar's cap; and what a delightful, even handsome face had this octogenarian! So well has enthusiasm and singleness of heart preserved the charming characteristics of youth in the keen eye, the kindly but resolute mouth, and the simplicity of character everywhere expressed, that it is not difficult to imagine the boy of twelve on the threshold of a career that was to be both happy and distinguished. This noble man, full of inspiring enthusiasm, is said to have always shown to the younger generation that kindness and encouragement which only the leaders in a science know how to give. Certainly there is much in his portraits that would promise support to such a claim.